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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,933	09/28/2000	George M. Ericson	JW-DG-668	8150

7590

03/11/2004

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EXAMINER

SORRELL, ERON J

ART UNIT

PAPER NUMBER

2182

DATE MAILED: 03/11/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

SL

Office Action Summary

Application No.

09/670,933

Applicant(s)

ERICSON ET AL.

Examiner

Eron J Sorrell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-42 is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 31-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,2, and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Chong, Jr. (U.S. Patent No. 6,370,605 hereinafter "Chong").

3. Referring to claim 1, Chong teaches a storage system for storing data for at least one host computer, the system comprising:

a plurality of disk drives (see items labeled 161 and 162 in figure 5 and lines 16-57 of column 3);

a switch having a plurality of input and output ports, the switch being connected between the plurality of disk drives and the at least one host computer for at least connecting one of the input ports on which the data was received to one of the

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output ports (see item labeled 221 or 222 and lines 16-57 of column 3);

an aggregator (control module) connected to the switch for at least managing operation of the plurality of disk drives (see item labeled 241 or 242 in figure 5 and see lines 16-57 of column 3; Note that the control module performs the managing operation of the plurality of disk drives, thus the control module is the aggregator as claimed);

operation coordinating logic operatively coupled to coordinate operation of the plurality of disk drives, the switch, and the aggregator in a manner to control flow of certain of the data between the at least one host computer and the plurality of disk drives to be through the switch and not through the aggregator in a manner which does not change the operation of the at least one host computer (see lines 16-57 of column 3).

4. Referring to claim 2, Chong teaches the switch is a fibre channel switch and the operation coordinating logic utilizes a protocol including the fibre channel protocol (see paragraph bridging columns 10 and 11).

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5. Referring to claim 12, Chong teaches a computer data storage system wherein the data is grouped in frames, comprising:

a plurality of disk drives for storing and retrieving the data (see items labeled 161 and 162 in figure 5 and lines 16-37 of column 3);

an aggregator for at least managing operation of the plurality of disk drives (see item labeled 241 or 242 in figure 5 and see lines 16-57 of column 3; Note that the control module performs the managing operation of the plurality of disk drives, thus the control module is the aggregator as claimed);

each of the frames including a header containing binary fields designating parameters including at least destination ID, the header being associated with that portion of the data contained with each of the frames (see figure 10B);

a switch connected between the computer, the disk drives, the aggregator for both controllably selecting certain ones of the data frames and flowing the portion of the data grouped in the certain one and having the aggregator as the destination ID directly between the computer and the plurality of disk drives, whereby data transfer through the aggregator is avoided for certain ones of the data (see lines 16-57 of column 3).

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6. Referring to claim 13, Chong teaches the switch includes control logic arranged to be commanded by the aggregator to selectively switch certain ones of the frames directly between the computer and the plurality of disk drives and all other of the frames indirectly therebetween through the aggregator (see lines 51-65 of column 10; Note that Chong discloses several transfers can occur simultaneously through the multi-ported switch so one transfer can be currently in progress while another transfer, that is just starting, must go through control module (aggregator) to be set up for direct communication).

7. Referring to claim 14, Chong teaches the switch includes a frame header selector (see lines 7-19 of column 19), an input frame header buffer (see item 86a in figure 9), and a map table (see item 114 in figure 11).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-8,10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chong in view of Applicant's admitted prior art (AAPA).

10. Referring to claim 3, Chong fails to explicitly set forth the limitation that the fibre channel protocol includes the FC-2 frame headers.

The Applicant admits that FC-2 frame headers are part of the five level protocol stack as set forth in the ANSI Fibre Channel Standard that is commonly used by manufacturers of fibre channel hardware (see lines 11-23 of page 5 and lines 1-11 of page 6 of the Applicant's specification).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Chong such that the fibre channel protocol includes the FC-2 frame headers in order to comply with the ANSI Fibre Channel Standard.

11. Referring to claims 4 and 5, Chong discloses the frame headers has a predetermined set of information fields including but not limited to destination ID, source ID, sequence ID,

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sequence count, originator's exchange ID, and respondent's exchange ID (see figures 10A and 10B and the paragraph bridging columns 18 and 19).

12. Referring to claim 6, Chong discloses the operation coordinating logic comprises mapping logic for generating a mapping command designating the host computer as the source ID, the aggregator as the destination ID, and a first particular originator's exchange ID, and further having a mapped destination ID which designates a particular one of the plurality of disk drives which is connected to a particular one of the output ports (see lines 20-50 of column 19).

13. Referring to claim 7, Chong teaches the operation-coordinating logic comprises unmapping logic with for generating an unmapping command designating the host computer as the source ID, the aggregator as the destination ID, and the first particular said originator's exchange ID whereby the effect of the operation of the mapping command is neutralized (see lines 55-67 of column 25 and lines 1-17 of column 26).

14. Referring to claim 8, Chong teaches the operation-coordinating logic includes proxy logic for generating a proxy

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command having the aggregator as the source ID, the particular one of the plurality of disk drives as the destination ID, and the first particular originator ID, and further having a proxy destination ID which designates a particular at least one host computer (see lines 20-50 of column 19; Note Examiner is relying on applicant's definition of a proxy command found on lines 7-11 of page 8 of the specification).

15. Referring to claim 10, Chong teaches the host computer generates data having the at least one host computer as the source ID, the aggregator as the destination ID, and the first particular originator's exchange ID (see paragraph bridging columns 18 and 19).

Referring to claim 11, Chong discloses the system includes logic for selecting certain of the data to obtain to obtain particular data words and wherein each of the words is operated upon by the operation coordinating logic in a manner to steer each of the words directly to a particular one of the plurality of disk drives (see lines 8-14 of column 4).

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16. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chong in view AAPA and further in view of Hoese et al. (U.S. Patent No. 6,148,421 hereinafter "Hoese").

17. Referring to claim 9, the combination of Chong and AAPA fails to disclose transfer-ready logic for generating a transfer-ready command having said aggregator as a source IC, the at least one host computer as the destination ID and the first particular originator's exchange ID.

Hoese teaches transfer-ready logic for generating a transfer-ready command (see lines 5-25 of column 5).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Chong and AAPA with the teachings of Hoese such that it comprises transfer-ready logic for generating a transfer-ready command having said aggregator as a source IC, the at least one host computer as the destination ID and the first particular originator's exchange ID in order for the initiator to know when the target is ready to receive data as suggested by Hoese (see lines 5-25 of column 5).

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18. Claim 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Chong in view of Muller et al (U.S. Patent No. 5,938,736 hereinafter "Muller").

19. Referring to claim 15, Chong fails to teach the frame header selector is a frame header mask.

Muller teaches a system wherein the frame header selector is a frame header mask (see lines 34-43 of column 7). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Chong with the teachings of Muller such that the frame header selector is a frame header mask because masks are easy to implement and the headers are all of fixed size thus easy to extract with a mask.

Allowable Subject Matter

20. Claims 37-42 are allowed.

21. Claims 31-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

22. Applicant's arguments filed 1/7/04 have been fully considered but they are not persuasive. The applicant argues:

1) There is no operation coordinating logic which coordinates operations to control flow of **certain data** between a host computer and disk drives to be through the switch and not through the aggregator, as required by claim 1, since data **always** does not pass through the aggregator (emphasis added) (see the second full paragraph of page 14 and a similar argument at the second full paragraph of page 16 of applicant's remarks filed 1/7/04).

As per argument 1, the Examiner disagrees. Chong does teach operation coordinating logic which coordinates operations to control flow of **certain data** between a host computer and disk drives to be through the switch and not through the aggregator, as required by claim 1. At lines 39-57 of column 3, Chong discloses command data is received by the switch and is subsequently directed to the storage controller (aggregator), where the command data is translated into one or more commands and processed to generate frame header substitution information. These translated commands and frame header substitution

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information is then transferred to back to the switch, which in turn transfers to translated commands to the appropriate storage devices. Chong further teaches that one or more frames associated with the data transfer operation are routed to the storage devices without passing through the storage controller (aggregator). This citation clearly shows that **certain data** is transferred from the host to the storage device through the switch and not the aggregator as required by claim 1 (emphasis added).

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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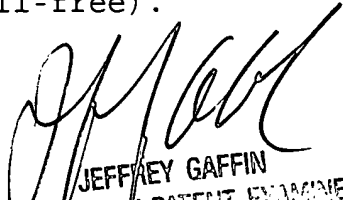
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J Sorrell whose telephone number is 703 305-7800. The examiner can normally be reached on Monday-Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on 703 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EJS
March 9, 2004


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